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ART. 101.—*Effects of the late severe winter in the Western Parts of the State of New York.—Remarks on Dr. Hooker's paper on the Botany of America.* [To the Editor of the New York Farmer.]

In my communication, printed in the fifth No. of this Volume, I mentioned that "*Tamarix gallica* and *Stewartia virginica* appear to be hardy." From the appearance of those shrubs, I indulged this hope for some weeks, but eventually found that every uncovered part had ceased to vegetate. This was also the case with *Andromeda speciosa*, *A. racemosa*, and *Styrax levigatum*. *Fontanesia phyllyræoides* was less injured than I expected.

Last autumn I left some vines of the *sweet water* grape exposed on the trellis, some I laid flat on the ground, and some I covered with earth. In the latter cases the vines are productive, in the former, although only the extremities are *killed*, the vines are so much *injured* that I have only *two* small bunches on six or eight branches.

Last year, I procured from a pond some roots of *Menyanthes trifoliata;* and from their being entirely under water I considered it an *aquatic plant*, and placed them with vegetable soil in a pot having no hole at the bottom, so that they should be surrounded by water. I found however that they vegetated rather feebly; and in autumn I removed them to a damp border, where the *stem* of one was exposed (*three inches high*) to the frosts and snows of winter. In spring I was surprised to find it in a healthy state, and soon after, delighted with its white blossoms. As mentioned in the last number of the Farmer, it is "one of the most beautiful of our indigenous plants" and I am pleased to have discovered that its cultivation is so easy.

I have neither inclination nor leisure to discuss the theory advocated by T. A. Knight relative to the short duration of grafted varieties of the Pear, apple &c. but I have not been able to discover that it can be applied to any useful purpose; and with *some* it has been carried to a ridiculous extreme. An author (now no more) whose writings on Agriculture have been useful, proposed in The Plough Boy for 1821, that no grafts should be taken except from seedling trees, because the common grafted varieties would soon become worthless! For a theory which may lead to much evil, and no good, I have not much respect.

Dr. Hooker's paper on the Botany of America, though not new to me, is very interesting and I was pleased to see it preserved in the pages of the New York Farmer; yet I think there are several exceptionable passages. It is not my intention to carp; and though there it nothing *directly* said to under-rate the character of our countrymen, yet we receive the impression that justice has not been done. We read "the Americans being for a long time, too much occupied in commerce and agriculture to devote their time and attention to science."* I stop not to ask who wrested the lightning from heaven, but what would be the converse of this assertion? Let us see —*the British being for a long time not much occupied in commerce and agriculture, devoted their time and attention to science.* Now it is evidently improper to speak of a nation where only a few individuals are concerned, and if we adopt the mode of analyzing this subject, introduced by the illustrious Jefferson when he exposed the follies of Raynal and Buffon, it will appear that Dr. Hooker's apology for us is unnecessary.

Did we owe the trade in Ginseng to the suggestions of Michaux? A full answer to this question would be interesting. If my memory is correct, it was actively carried on, more than 40 years ago.

"From the first four or five years of his residence in America, Pursh seems to have been chiefly employed in collecting plants about Philadelphia, and in receiving them from his correspondents *for cultivation in his gardens there!*" I infer nothing unfavourable to Pursh from the facts that "he lived in the humble character of *gardener* to Mr. Hamilton of Philadelphia, and Dr. Hosack of New York, or was for some years employed by Dr. B. S. Barton as a collector of plants;"† but the concealment of these facts, however unintentional, transfers to Frederic Pursh, the praise which is justly due to his patrons,

* In the New Edinburgh Encyclopedia where the toilsome journies and discoveries of our Botanists are overlooked, the reasons offered for the pretended ignorance of our ancestors are that they had been occupied by the trouble of organizing a new overnment, and the fear of Indian hostilities. I regret that the volume is not before me, and that I cannot give this evidence of *other hostilities*, verbatim.

† American Monthly Magazine for January, 1818.

and every new or rare plant, collected by their personal exertions, or by the application of their wealth became his.

"In 1805 he explored the Western Territories of he Southern States." Another account states, however, that "he travelled from North Carolina to Maine, but never visited the southern nor western states."* This is probably correct, except that North Carolina, Virginia, and Maryland, through which he passed, have been called *Southern States.*

"But the most important advantages were derived from Pursh's personal acquaintance with, and communications from *various botanists*, who *about this time* were to be found in various parts of the United States." It is remarkable that no hint has been given that Michaux enjoyed similar advantages. We may infer that *various Americans about this time* had loft their commerce and agriculture. Let me be understood—for the attainments of Dr. Hooker, I have the highest respect, and he has shown kindness and candour in his notices of Muhlenberg, Bartram and others; but my object is to prove, *without assigning the cause*, that in many instances Europeans have received the honours due to our countrymen.

"Mr. William Bartram—a man who merits the gratitude of every Naturalist, for the cordial reception which he gave to Wilson, the ornithologist, at a period when that highly gifted individual had scarcely a friend in the world. It was the advice and encouragement that Mr. Bartram gave him that was mainly the cause of the appearance of one of the most valuable works on science that was ever published in any country." This compliment was doubtless well merited, but it falls short of what was due. W. Bartram by imparting his zeal and tracing the path, caused Wilson to be an ornithologist. A country can justly derive honour from her children, only when her liberal institutions have educated them, and the state of her society has encouraged them in their career of glory. Any land might be proud of Wilson; but to Scotland, rich in great names, we are only indebted in this instance for an itinerant weaver.

I have not intended the letter for publication, which I have not even time to copy; but any part may be used, altered or rejected.†

Very respectfully.

7 mo. 29, 1829. DAVID THOMAS.

The following article comes within the province of our work, and cannot fail of being read with interest by every farmer, who thinks it not unprofitable to extend his thoughts occasionally beyond the bounds of his own farm.]

ART. 105.—*An Essay on the temperature of the Earth.* By M. D. CORDIER.—Analised and translated from the French, by SAMUEL L. MITCHILL for the New York Farmer.

A work has been sent me, in French from Paris under this title. The author is a member of the royal academy of sciences at the Institute, division inspector of the royal corps of mines, and administering professor of the museum of natural History. He is also the author of an excellent performance published some years ago on volcanic rocks.

After the long and fierce disputes between the Nepturean and Volcanic theorists of the globe we inhabit, or in other words between the partizans of water and of fire as the prominent agents, in giving their configuration and stratification it possesses, M. Cordier comes forth boldly in favor of the igneous doctrine. It is the oldest opinion entertained by philosophical men. After a reign of great duration, it was in part superceded by the aqueous hypothesis, and indeed seemed for a while rapidly on the decline, latterly, however, it has been revived under such view and circumstances as to have gained many new adherents.

This change of opinion may be traced to several causes; such for example as the important discoveries recently made in geology, the relative disposition of the materials composing the most ancient strata of the earth's crust, having been discovered to be very different from what had been first suppossed, the fact that the volcanic agents are situated below the primordial strata; the true nature of lavas and their identity, over all the regions of the globe, have been proved, the analogy of numberless strata of all ages with lavas has been demonstrated; the facility with which all these substances originally fluid and incondescent, or white-hot, have crystalized simply by cooling, has been noted and proved, by all which consideration the system of watery crystalizations has received several violent shocks.

According to these views our planet is considered as possessing an internal and inherent source of caloric, wholly independent of the sun's influence; that the degree of this is least at the surface; that it increases as observation are made by experimentors who descend into deep mines and excavations; and that as the refigeration and solidifications have taken place for a moderate thickness on the surface, the consequence is that could man penetrate deep enough, he would reach the region of such intense and permanent heat, as retains all the central parts in state of liquidity or fusion.

The inquiry M. Cordier makes with this subject consists of three sections.

* American Monthly Magazine for January, 1818.

† We think the whole will be acceptable to our readers. *Ed.*

He first comprehends in historical detail the experiments on subterranean temperature, which had been published by writers before him, by distinguished observers in Switzerland, France, Saxony, Great Britain, Peru and Mexico. He enters with a minute and circumstantial examination of their labours, and while he allows them to possess real merit, he concludes there was need of further researches. These he undertook himself.

The second section contains these new and direct experiments on subterranean temperature as they are reported to have been made in the deep coal mines at Carracaux, Littry and Decise in France. He thinks they prove the problem, and more than that, there is a remarkable correspondence in the results. His inferences are these. 1. The experiments clearly establish the existence of an interior heat inherent in the terrestral globe, which derives nothing from the solar radiance, and which increases rapidly on descending from the surface. 2. The augmentation of this subterranean heat, does not follow the same law all through the earth, it may be double or even triple in one part, the degree in which it exists in another. 3. These differences have no ascertained connection either with the latitude or longitude. 4. The increase is more rapid than had been supposed; for it may amount to one thermometrical degree for every fifteen or even thirteen metres in certain countries; provisionally, however, the mean term cannot be fixed at less than 25 metres.

His third section contains the principal applications he makes of his doctrines to the Theory of the Earth.

1. He avers that all the phenomena observed (p. 66) are in accordance with the mathematical theory of heat, assuring that the interior of the earth is of a highly elevated temperature which is coeval with it and peculiar to it, and is a part of the original order of things: on the other hand, as the volume of solid matter is vastly more considerable than of the waters (probably ten thousand times as great) it is extremely probable, that the fluidity the globe incontestibly enjoyed before it assumed the spheroidal form, was owing to its heat.

2. This heat was excessive, for that which could actually exist at the center of the earth, upon the supposition of a regular increase at the rate of one degree for 25 metres of depth, would exceed three thousand five hundred degrees of Wedgwood's pyrometer, which is more than two hundred and fifty thousand of their centigrade degrees.

3. It ought to be admitted that the temperature of 100 (hundred) degrees of Wedgwoods pyrometer, which would be capable of melting all the lavas and a considerable portion of the known rocks, exists at an exceedingly small depth in relation to the earth's diameter; and on exemplifying it, he decides that this profundity is at least fifty five leagues of five hundred meters at Carmeaux; thirty leagues at Littry, and twenty three leagues at Decise; numbers which correspond to the 1-23, 1-42, and 1-55 of the mean radius of the earth.

4. Every consideration leads to the belief that the interior mass of the globe is still endowed with its primiture fluidity, and that the earth is a cooled star, which is refigerated and hardened only at its surface, as Descartes and Leibnitz had supposed.

5. If on one side, it be considered what were the generalized observations of Dolomieux on the disposition of volcanic fire-places, and our own experiments on the composition of lavas, with their respective relations to volcanic phenomena; and on the other side, the great fusibility of the matters that all the volcanos of the earth actually eject, and even a long time ago; it may be presumed that the interior fluidity commences, at least at many points, in a depth considerably less than that of 100° of Wedgwood's pyrometer.

6. The crust of the earth, deduction being made from that incomplete and superficial particle called secondary soil, having been formed by refigeration, it followed as a natural consequence, that the consolidation has proceeded from the outside towards the inside, and that of course that the strata of primiture soil nearest the surface are the most ancient. In other terms, the primordial layers are to be deemed recent in proportion to their depth of level; a conclusion quite opposite to the present admissions of geology.

7. M. Fourier, considering the distribution of subterranean heat in the depths which are accessible to us, the temperature of the poles, and the existence of radiation toward the celestial spaces, has demonstrated that the earth is going on in the cooling or refigerating process. This refrigeration is merely insensible at the surface, because the losses of heat are there constantly compensated by the effect of a propagation which proceeds from within outwards, a compensation almost complete, which continually approaches the state of equilibrium, and which experience and theory perfectly explain. The losses of heat have thus no influence except at great depths whence it results that the crust of the globe goes on daily to incroach upon the inferior by new and modern solid layers. Hence the formation of primordial soils has not ceased; and will not cease until after an immense time, that is to say, after the cooling shall have reached its limit.

8. If the earth's crust has been formed according to this supposition, the primordial strata with which we are acquainted ought to be disposed nearly in the order of their fusibilities; *nearly* it is said, for it must

take a part in the rapid action with which the cooling must have taken place in the origin of things regulated by the chemical affinities prevailing in such huge masses. By consequence the magnesian, calcarious and quarterly strata are nearest to the surface.

9. It follows, that the mean thickness of the earth's crust, is not probably more than twenty leagues of five thousand metres. I say, upon the basis of several geological data not yet fully interpreted, but which I shall consider on another occasion, there is reason to believe it is much less. At the ratio of the before-mentioned estimate, this mean thickness would not equal the sixty third part of the mean radius of the earth. It would not exceed the four hundreath part of the developed length of a meredian.

10. The thickness of (the earth's) crust is probably very unequal. This great inequality seems to be indicated by the condition of subterranean temperature in different countries. The difference of conductibilities seems incapable of explaining the phenomenon. Various geological considerations lead to a fair conclusion that the crust of the earth is very variable.

11. The proper heat which the soil in every place disengages continually, being the fundamental element of the climate which is there established, and as far as we know, the quantities of this heat, not being in a regular ratio, in the several countries of the globe, it may be understood why countries situated in the same latitude, have, cœteris paribus, different climates; and how Mairan, Lambat, Mayer and other naturalists have failed to represent by regular scales of gradation, the mean superficial temperatures which they supposed to exist between the equator and the poles. Thus a new circumstance is added to those occasioned by the singular inflections produced by isothermal lines.

12. Whatever may be the nature of the forces or the events that have formerly disturbed the stability of the continents, and produced the general dislocation and overturning observable in the coat of the earth, it may be readily perceived that all the parts of this floating crust, if one may so say, around a sphere perfectly fluid, and otherwise infinitely subdivided in the course of stratification, may have been by these causes, and the numberless recesses produced in the strata by refigeration, dislodged and overturned as we find them. These effects are inexplicable, if, as has been commonly supposed, the superficial layers of the primordial soil were consolidated last, and if the globe is solid quite to its center.

13. Long ago the probable fluidity of the central mass was considered. The phenomena of earthquakes, the moderate thickness of the consolidated crust, and more especially the innumerable solutions of continuity that have rent this crust, a conclusion has been drawn, that this crust possesses a certain degree of flexibility. The elements of this property were developed by Mr. Cordier in a memoir to the Academy during 1816. Though this idea did not at the time receive the sanction of the philosophical world, he considers now more probable than ever. It may be conceived further, how the fluidity of the central materials serving for its support, may put the incumbent crust in action, without affording any knowledge whatever of it. Effectively, to produce a change of figure in the spheroid sufficient to elevate the equator a metre, and proportionally shortening the axis of the earth, it is sufficient as relates to the plan of the equator, that every one of the innumerable solutions of continuity which cut across the consolidated crust, amounting to a mean term of five metres, were subjected to a removal or separation equal to the twelve hundred and seventy sixth part of a millimetre, I should consider this excessively small.

14. The probable feasibility of the earth's crust is actually supported by two principal causes, one general and continual; the other local and transient. This latter cause, contemplated for the thirty last centuries which elapsed, has spared no country. Sometimes it has shaken almost instantaneously the twentieth portion of the surface of continents or it has produced an undulation of the soil in directions equal to a sixth or seventh part of a meridian. I am now speaking of earthquakes. Since the date of history, more than six hundred are noted, which their violence or extent have rendered memorable. The second cause presumes that the permanent diminution of the earth's heat does not produce any sensible contraction in the subterranean regions near the surface, while its effects are continued deeper below, either augmenting the removal of the masses that have felt their first effects of the retreat, or causing new solutions of continuity in those masses. It may be added that the slow formation of new solid strata in the interior ought to obey the general rule in virtue of which the materials in a liquid state undergo a great diminution of bulk in passing to a solid state.

15. The least possible regions of the earth's crust are necessarily those near the surface, for the transversal solution of continuity which they contain, have long since reached and lost their maximum of removal. It is evident the central forces tend to approximate the elementary masses of the superficial regions measurably as the cooling contracts more and more the volume of all the internal parts of the globe. This approximation would act in an uniform manner if the strata of the consolidated crust were concentric and if all the transverse fractures were in the direction of planes perpendicular to the surface; but it is not so. The act of overturning the primordial crust is such, that considering it upon a great scale, it may

be defined as a heap of ruins pressed along side of each other, and whose strata are mostly very much inclined or verticle. Since this state of things subsists, the obliquity of an innumerable quantity of these disjointed bodies, some of which are of prodigious extent, raises an obstacle to the establishment of an approximation at all points of elementary masses which should be uniform and proportioned to the central contractions. This approximation has been followed by changes of level, not very considerable indeed, but capable nevertheless of affecting the great continental surfaces. Various geological facts are in accord with this hypothesis. It may be presumed the effect still operates, although in an insensible manner. If the secular or centurial rising of the basin of the Baltic sea is constant, it may be explained upon this principle. In the same way may be comprehended the change in the level of the Mediterranean observed by M. Cordier and M. Dalamieu on the shores of Egypt, and described by the former in his account of the ruins of Tunis, in the great publication concerning Egypt. It may now be believed, according to my judgment, that all this part of the continent of Africa undergoes a progressive lowering which may amount to two or three centimetres in a century.

16. M. De la Place estimating that the astronomical observations made in the age of Hipporchus were exact enough to warrant the conclusion that the day's duration has not shortened one three hundredth part of a centesimal second (1-300) for twenty centuries, has thought the contraction which is really produced by the secular cooling of the globe, was not of proportion enough to cause a sensible augmentation in the rapidity of rotation. This opinion affords an useful limit of the real effect of general cooling.

17. But, if allowance is made, for the effects of contraction since coolling began, it must be admitted that it has exerted a certain influence under the preceding point of view. On one part, the duration of day has successively lessoned a small quantity; and on the other, the figure of the earth has undergone a slight alteration in consequence of the accelerated swiftness of rotation, provided the flexibility of the consolidated crust, was such as to admit the shape herein admitted. Hence the day is somewhat shorter, and the spheroid a little flatter toward the poles than in the beginning of things. If these data are exact, it is evident the two effects continue: nothing more is necessary than to find a better method than the preceding to estimate its weak intensity. That this is not impossible, will be presently seen.

18. Another consequence no less probable, and not less curious, to which the notion of central fluidity and incondescence leads, is this; small as, according to this doctrine, is the flexibility which the crust of the earth possesses, it follows that the phenomena of the tides prevail, without a doubt thus far over the terrestrial mass itself. This effect need not produce any astonishment, for it ought to be considered as exceedingly weak, if attention be paid to what has unquestionably taken place in the beginning of things, that is to say, when the globe's surface enjoyed the perfect fluidity which all the hypotheses allow. It is easy to demonstrate that the greatest of the terrestrial tides could not have had less than four or five metres.

19. The actual centurial cooling, increasing incessantly the crust of the earth, it may be asked whether the incondescent matter submitted to this action passes wholly into the solid state, or whether it is decomposed in such a manner as to furnish solid parts and gaseous parts. This sort of decomposition by cooling, this production of gas which has nothing improbable, the coagulation of lavas presents us daily a striking example. The admission of this sentiment explains very naturally the origin of earthquakes. An excessive temperature supports the primitive matter in a gaseous state in spite of the influence of the excessive pressure which it sustains in the great depths under consideration. The capricious phenomena of earthquakes, appertain to the extreme inequality of the interior surface of the earth's crust.

20. The proceeding considerations lead to an intirely new explanation of volcanic phenomena; a solution which will perhaps appear more satisfactory, at least to the few persons who have a just and complete idea of the elements of the question. These phenomena appear to be the simple and natural result of the interior cooling of the globe, an effect purely thermometrical. The internal fluid mass is subjected to an increasing pressure, occasioned by two forces the power of which is immense, although the effects are moderate and not very sensible. For on one part, the solid crust contracts more and more as its temperature diminishes, and this contraction is necessarily greater than that which the central mass experiences at the time; while on the other, this same cover or envelope, in consequenne of the insensible acceleration of rotatory motion loses its internal capacity in proportion to its departure from a spherical form. The interior fluid masses are forced to come out in the form of lavas through habitual openings called volcanos, and with the circumstances which the accumulation of gaseous matters naturally produced in the interior, produce eruptions. This hypothesis need not excite any surprize, since it can be rendered probable by a very plain calculation.

Mr. Cordier had cubed at Teneriffe, as nearly as possible, the substances ejected by the eruptions of

1705 and 1798. He performed the like operation in regard to the productions of the the eruptions still more perfectly distinct, which existed in the interior of France in the extinct volcanos there to wit, (in 1806) those of the volcano of Murol in Auvergne, and (in 1809) in those of the volcano of Cherchemus near Issarle's of Mezin. He found the bulk of the volume of each eruption much less then a cubic pilometer. From such facts, and others of the same kind, which he had collected from other sources, he found himself warranted in taking the bulk of a cubic kilometer as the extreme term of the product of volcanic productions in general. Now, such a mass is a trifle in comparison with the body of the globe; spread over the surface it would not form a layer thicker than (1-500)one five hundreth of a millimeter in thickness. In exact terms, if the crust of the globe be supposed to be of a mean thickness of 20 leagues of five thousand metres, nothing more would be requisite in this crust to produce an eruption, than a contraction capable of shortening the mean radius of the central mass (1-494) one four hundred and ninety fourth part of a millimeter would be sufficient to produce an eruption.

If, leaving the premises, it be presumed that the contraction alone causes the phenomenon, and that all the earth over, there are five eruptions a year, it may be found that the difference between the contractions of the consolidated crust, and that of the internal mass does not shorten the radius of that mass more than a millimeter in a hundred years. If there should be but two eruptions a year, the same shatering would be brought about in two centuries and a half. It is observable in all these cases, an action excessively small is requisite to produce the phenomena.

This action, if real, is necessarily connected with the total contraction the globe undergoes, by the cooling from age to age. It affords a basis for calculating the trifling influence this total contraction bestows on the acceleration, or increased velocity of rotation.

There is therefore nothing less required than the enormous power I have represented, to elevate the lavas. In the special instance, where they should arrive precisely from the depth of twenty leagues, it is easy to prove, from their mean specific gravity, that they were pressed by a force equal to (28,000) twenty eight thousand atmospheres. Furthermore, it is known, that they overflow almost daily after the discharge of the gaseous matters, a consequence perfectly easy to comprehend upon Mr. C's system.

This is not the place for developing a hypothesis purely thermometical for explaining volcanic phenomena and for showing with what success it applies to all the details of the phenomena. It is enough to remark that it affords a reason for the identity of the circumstances that characterize the work of volcanism in all parts of the earth; of the memorable reduction of the number of volcanoes in recent and modern times; of the diminution in the quantity of ejected matter after each eruption; of a nearly analogous composition of the productions appertaining to each geological epoch; and of the small differences that exist between the lavas that belong to different epochs. Lastly, upon this hypothesis the most usual directions of earthquakes, announce zones of Earth's crust possessing the smallest thickness; and the volcanic centers, as well ancient as modern, constitute at once the points of the least thickness of this crust.

From the premises I have abstracted the gaseous matters, that each eruption has produced; because, that supposing them to be reduced to the liquidity in the mixture they originally had before their disengagement, they could have had but a small volume; and that the mean of a cubic kilometer, which Mr. C. had adopted far exceeds the real medium.

21. The greater part of the substances which mineral and thermal waters contain being analogous to those exhaled, whether from the waters during and after eruptions, or from currents of lava after crystallization, or from solfatarras, it is a fair subject of belief that they proceed from a common reservoir. Their emission occasions continual losses to the gaseous charge within. These losses which are incessantly repaired by new subterranean productions, take place in consequence of an expansive force which is immense, and through a succession of fissures that are extremely narrow. The water is furnished by the superficial causes which feed common springs. The alteration of certain parts of the conduits, more especially near the surface may sometimes cause the replacing of certain principles by others. In this system of explanation, we can conceive without difficulty the permanency of springs, their almost invariable temperature, and the singular nature of their principles. Several phenomena seem to prove that they were much more numerous in the times anterior to the actual geological period, which is explicable from the less considerable thickness which the earth's crust then had and from the greater activity in cooling.

22. Judging from the lavas, the fluidity of the incondescent matter constituting the interior of the earth, must be very great, and its density in the regions remote from the center (for example, at a distance equal 49,50 of radius) would be far inferior to the mean density of the whole globe. These two postulates are not in opposition to the influence allowed to the enormous and growing pressure which is due to the action of the central forces. It is to be

observed too are compressed very feebly, that this compressibility has a limit, and that an excessive heat may balance the effects of it. Besides, the actual lavas, have, after their coagulation, a mean specific gravity, greater than that of the primordial rocks taken in the aggregate, whence it may be concluded independent of every other consideration, that the density of the contral matters belongs much more to their nature than to compression, they being originally placed in the order of their specific weights. The existence of gold and platina proves that there may be found at the center of the earth matters naturally endowed with extreme density.

23. Hence there is probability in the hypothesis of Halley which attributed magnetic actions to the existence of a mass composed in a great degree of metallic iron, irregular, and performing a peculiar revolutionary movement at the center of the earth. Two classes of phenomena of which Halley had no knowledge, add to this probability; on one part the rotation of Saturn's ring around that planet may be quoted as forming a sort of analogy; and on the other the nature of meteoric or atmospheric stones proves that iron in a metallic state and allied to nickel, may enter abundantly into the composition of the planetary masses.

24. If the hypothesis of Halley is admissible, it furnishes the limit of the interior temperature of the earth. This limit is that of the resistance that forged iron charged with a enormous pressure, may oppose to fusion, one might be inclined to reduce it on considering that the experiments of Newton confirmed by those of Barlow, have proved that iron heated to a white heat, loses its magnetic quality; but on the other hand, it must not be forgotten that excessive compression of the metal will probably postpone the term when the magnetic virture will disappear.

25. Finally, according to the same hypothesis, researches may be made upon different effects exceedingly weak and hitherto unperceived, which the different positions and the irregular figure of a solid interior mass endowed with a peculiar motion, and partly composed of metallic iron, might occasion. Thus, for example, doubts might be entertained of the perfect, absolute invariability hitherto attributed to the disaction of the plumb-line, in every place; and this doubt will apply to countries remote from the bands without declination, and from the magnetic equator.

Such, he observes, are the chief inductions that may be drawn from the hypothesis of central heat and fluidity, amidst the important questions of geology. These inductions might easily be extended to explain in a manner equally satisfactory primordial formations not stratified, the formations called intermediary, veins, layers of gypsum, sulphur, salt, lime and magnesia of the secondary soil. He admires the fecundity of the applications; and this fecundity adds to the probability of the principle. It is very different with the Nepturian system which swayed opinion so long, and which represents the globe as a solid at the center, cold, inert, and formed from below upwards by watery deposits. This system is conspicuous for its sterility; and none of its applications will bear a serious examination. It is contracted to very narrow limits, as in the explication of superficial layers formed from consolidated sediments, agglomerated ruins, and organic remains which constitute almost entirely the excessively thin layer called the secondary soil.

ART. 106.—*Ringing the Branches of Fruit Trees and Knight's Theory of the circulation of the Sap.* [For the New-York Farmer.]

Mr. Editor,—I am in the habit of reading your interesting paper, and if I remember aright, think I have seen the above mentioned practice recommended by some one of your correspondents; at any rate I have frequently met with it in books upon gardening. Now, sir, I am a great enemy to the propagation of false principles, and I think it a duty which every true lover of horticulture owes his brotherchips to prevent the dissemination of them. What first induced me to try the experiment was, a recommendation contained in Fletcher's American Orchardist; it is said to have been successful in a number of trials, upon apples, peaches, pears, quinces, &c. and to have caused the fruit upon the branches so treated to attain double the size of that produced by the other branches—A number of my friends as well as myself, have since tried it upon various sorts of fruit trees, and in every instance it has proved unsuccessful; not only disappointing our hopes of enlarging the fruit but actually causing it to drop from the tree; the excuse of which I am unable to devise, and should be glad if some of your ingenious writers could solve the difficulty.

The branches were considerably larger above the ring showing to my satisfaction that there was much more sap there than nature intended; but with respect to the manner in which it got there some doubt has arisen in my mind. Fletcher adduces Knight's theory of the motion of the sap in explanation of the phenomena consequent upon the experiment. Knight supposes that the sap is absorbed from the soil by the bark of the roots and carried upwards by the alburnum of the roots, trunk, and branches, from thence it is distributed to the leaves, blossoms and fruit, and then descending by the BARK deposits every succeeding year a new layer of wood. Before I state the reasons for my scepticism, it may be well to notice a paradox of Thatcher's. In his directions for per-

forming the operation, he tells us to make two circular incisions through the bark, round the limb a quarter of an inch from each other, removing the bark between them "clean down to the wood, even the fine inner bark which lies immediately upon the wood must be scraped away, until the bare naked wood appears white and smooth, so that no connexion whatever remains between the two parts." Now this fine inner bark is the alburnum itself, the removal of which (if Knight's theory be correct) would prevent the ascent of the sap entirely, and thus instead of enlarging the fruit, would kill fruit, branch and all; but Sir, this was not the result of my experiments. According to Thatcher's direction I removed the bark and alburnum from several branches of apple, cherry, and pear trees, just as the leaves were beginning to expand, taking particular care that every vestage of bark and alburnum insulated from that below. At the same time, I removed the bark alone from an equal number of trees of the same species suffering the alburnum to remain. I was induced to do this in consequence of doubts I had long entertained respecting the ability of the bark to return so large a portion of sap as is supposed.

The result of my experiments was as follows.—In the first place, the fruit all dropped off—secondly, the alburnum (not the bark which would have been the case had Knight been correct) above the incision of those branches from which bark and alburnum had both been removed, increased much faster than that below, which was no larger than that of any other part of the tree, whilst that above was thrice the size; the bark above the incision had not increased at all. A large callus had been formed by the exudation of the sap from the alburnum above, whilst there was no appearance of callus below; this, will be readily perceived, would have been just the reverse had the sap *ascended* by the alburnum. The appearance of the branches from which the bark only had been removed, afforded additional evidence that the alburnum was the medium through which the sap *descended*; both above and below the incision these branches were of the same diameter, and both equally vigorous, the albernum, from which the bark had been removed, being covered with a thin coating of bark equally diffused over the whole of the exposed surface, proving, thereby, that the bark is produced by the alburnum, and not the alburnum by the bark; there could be no deception in these appearances, as I made a section of each branch, and examined them minutely. From the result of these experiments, I have been induced to adopt the following theory.—First, that the sap is drawn from the soil, by the wood especially by that part of it which lies next the alburnum, and that the nearer it lies to it the more absorption it performs, decreasing in its capacity for this process as you approach the heart of the tree. This I argue from the more porous nature of the superficial and the tenser of the internal parts of the wood.—Secondly, that the sap descends by the alburnum, which in due time becomes wood, and throws out a new one as fast as itself is incorporated with the tree. This deposit we all know occurs annually, and produces those circles by which we determine the age of a tree. Thirdly, that the bark is a secretion, or rather an excretion from the sap, and answers the same purpose in vegetable economy that the skin does in the animal, serving as a protection for the more delicate parts beneath, at the same time being an excretive surface, through which that matter, which is not fit for assimilation with the wood is conveyed from the tree.

Another circumstance in confirmation of this theory, is the familiar fact that the buds at the tops and lateral extremities of vegetables begin to expand before those nearest the root which latter would undoubtedly be the first to unfold themselves, if the sap ascended by the alburnum, as they have a direct communication with it. There is no doubt lateral concretions, answering to those of the human system, which serve to connect the different parts in intimate union, and to convey to each that quantum of nutriment essential to its existence; but I have no doubt, if the principal degree of circulation is carried on in a manner precisely to that of animal, the wood performing the function of arteries, the alburnum that of veins. It will be perceived upon comparing the preceding theory with Knight's, that the effects produced by ringing the branches would be the same in either case, the difference consists in the agency which produces them. Knight makes the wood almost useless in the economy of the tree, and refers all the phenomenon to the bark and alburnum, whereas the foregoing ideas make them both equally important. Upon examining the bark, (properly so called) it is apparent that it cannot be capable of performing so important a part in the increase of the trees, not only on account of its minor degree of vascularity, but its disproportion in quantity; besides this, the circumstance of our common sycamore shedding its bark during the period of its most rapid growth, when its services (if it really afforded them) would be indispensable, proves conclusively that this is not its proper function.

It would afford much pleasure to the writer of the preceding remarks, if some of the numerous contributors to your meritorious paper would favor the public with their ideas upon this important and beautiful department of vegetable physiology; many have doubtless tried similar experiments which would, if imparted, greatly assist in elucidating some of the mysteries of the vegetable kingdom, the least of

which cannot fail to be highly interesting to every lover of our delightful employment.

E. H. Dixon.

Remarks by the Editor.—The circulation of the sap is an interesting subject, concerning which there is much to learn. Heat is unquestionably the cause of the early flowing of the sap, and in whatever part of the tree it is greatest, in that part we should suppose will the sap first begin to circulate. On a succession of a few warm days easily in the Spring, the sap of the sugar maple will run, three or four feet above the surface, while the frost is still in the ground.

The subject is of so much practical application, that we deem the two succeeding articles, in addition to what has been said by our correspondent, well worthy of a place in our columns. No reflecting farmer or gardener can read them without seeing the extent and importance of their bearing. Further information and experiments on this subject, will throw much light on the time for cutting timber designed for building and other purposes of durability.

ART. 107.—*An account of some Experiments in Physiological Botany, undertaken at Welbeck in* 1828–24, *and repeated in* 1825, *with a view to ascertain the probable Cause of Failure in early forced Grapes.* By Mr. Joseph Thompson, Gardener to his Grace the Duke of Portland. [From the Gardener's Magazine.]

Sir,—In December, 1823, and January, 1824, I placed some vines in pots at the front of a low Calcutta pine-stove, and introduced the tops of the vines into the stove, through the nine-inch brick wall, one near the entrance of the fire-flue, and the other more distant from the fire, stopping the wall with moss, and protecting the roots from frost with stable litter in the usual way. I examined them every day, and on the 13th or 14th day (I made no notes that year) I found them beginning to vegetate at the top buds; I then wounded them in different places daily, and found the sap descend in regular progress from the tops to near the front wall; when that near the fire-place began to wither, the first shoots became curled, downy, and quite stagnant, the other vine did the same in a day or two after. Those vines did not recover, nor were in health at the tops all summer; but some shoots came out near the surface of the pots in the first week of April, which were very healthy, and 5 or 6 feet high before the autumn.

I then determined to change the usual practice, in the first operations of the early forcing the next season, and resume those and other experiments with greater precision by taking notes, &c.

In January, 1825, I selected two strong vines, and cut them down to 5ft. 6in. high, the wood was firm and good, they were re-potted into full sized peck-pots, leaving the balls entire for daily inspection.

On the 24th of January, these vines were placed in the same places as those mentioned in the last year's experiments: that nearest the fire-place was only protected from frost in the usual way, without paying any regard to roof and rain-water by a larger quantity of manure in a state of fermentation. Both vines reached full 4 ft. within the stove, which contained pine-apples in a forward state, some ripe and others nearly so, and the temperature was kept up from 65° to 80°. The weather in the last eight days of January was changeable; the medium of heat was 43°, of cold 33½°; and the rain fallen in the same was 13–100 of an inch.

I examined both vines daily within the stove, and at the roots. On the second of February the top buds of both were turgid; on the 3d, the top buds had shed off their envelope, and were ready to break into leaf, and the other buds were in successive progress. I then cut through the bark and alburnum into the wood, but not to the medulla, the two top joints bled freely, and the third was just moist, and at a foot from the top they were quite dry, the wounding and examination of the roots were continued daily, and often twice a day, and the sap descended in regular progress until it reached the cavity between the fire-flue and front wall, when a visible check appeared, which the vine nearest the fire-place never got over.

On the 20th of February, the protected and exc[i]ted vine began to bleed outside the wall, it had taken four days more in passing the air-flue and wall, than in passing the same space in the more temperate air of its upper parts. On the 21st, this vine bled freely at the surface of the soil; on the 23d, it began to make fibrous roots in the soil that enveloped the whole ball, and put out fine, strong, new roots at the surface. During the above interval of thirty days of the experiments, and twenty-two days of vegetation, nearly all the buds on this vine had vegetated in regular succession; I never could perceive the least check or stagnation in its leaves or shoots; it had two small bunches of grapes on it, which were just coming into bloom, one of which was cut off. On the 28th of February, a change of texture in the foliage began to appear; the tender almost transparent green changed to a fixed, dark, substantial green, with clear indications of laterals at the first-made shoot joints, the sap at all the lower wounds had now dried up. The weather of this month was mild for the month of February, the greatest cold was 22°, the medium of heat was 46°, and of cold 34° 3–28, with only 28–100 of rain.

On the 20th February, the vine which was neither protected from rain nor excited, began to droop and stagnate, the shoot ends became brown, downy, and sickly together; no sap ever exuded outside the wall; the roots never showed the least sign of vegetation; the three bunches of grapes shown upon it curled and withered away.

On the 1st of March, I removed both vines into another pine stove; the excited vine continued healthy, and ripened the bunch of grapes left upon it.

On the 10th of March, the unprotected vine began a fresh vegetation at 6in, from the soil; on the 12th, a fine, strong shoot came out at 4 in. from the soil; on 15th, the roots began to send out fine, white, fresh fibres all around the ball as well as at the surface of the soil. The new shoots made rapid progress, but the top never recovered, nor made any fresh shoots all summer.

I had to destroy a largish grove of birch and other trees to make room for a plantation of evergreens, which gave me an opportunity to repeat the experiments on them. I examined them every day, and, on the 7th of April, I found the buds at the extremities of the shoots just beginning to open. On the 8th, I cut off the extremities of two branches to about half an inch in diameter, near the tops of two trees (which were about 25 ft. high,) and put the remaining branch ends into two glass bottles, which I left suspended there; the branches bled freely into the bottles. At the same time I wounded several side shoots in various places, as well as the trunks from the tops to the ground, at 2, 3, or 4 ft. distance. I then cut some trees down to see if I could detect sap or air rising from the root-stumps, but I found them quite dry, they would not soil fine white paper which I applied to them. I then made two of them very smooth, and anointed one over the surface with fine size of wheat flower, which set fast and dried on. The other was covered over with fine, prepared, red clay paste. I opened the ground, and wounded some strong roots, and tracing the fine fibrous roots to the end found them brown and torpid. On the 9th, the bottles contained a good deal of sap, and the branches and tops of the trees oozed a little. On the 10th, the bottles were nearly as full as the oblique position they were of necessity placed in would allow; they were taken down and replaced by others. This sap was remarkably limpid, and seemingly contained a kind of fixed air by the crackling hissing noise it made, though no effervescence could be seen in a clear glass phial. By the appearance of the sized and clayed stumps (under a pocket microscope of 2-in. power,) the medulla and alburnum rather absorbed than raised the applications.

On the 11th, the branch ends had stopped bleeding; the bottles contained a little sap, which was thick and muddy, and had no crackling nor hissing noise. The trees now exuded nearly half way down.

On the 12th, there was no alteration in the stumps or trees felled this day; the bleeding had descended 5 ft. 6in. in twenty-four hours.

On the 13th, the progress of the sap was the same, and no alteration in the stumps or trees felled this day. On the 14th, there was no alteration in the stumps, the sap reached nearly to the ground and the upper wounds were encrusted over with a nasty fetid mucilage. During the above eight days, the weather was fine with a good deal of sun. Medium of heat 61°, and of cold 40°.

In the night before the 15th, the weather changed to a sharp cutting wind, and the sap ceased to flow from any of the most recent wounds. No alteration in the stumps or trees till the evening of the 20th, except a very slight exudation from the trunks of recently felled trees, which, when, wiped off, appeared to come from all parts of the wood, medulla and alburnum alike. Medium of heat those six days 52°, of cold 41°.

On the 21st and 22d, a little sap exuded from the most recent wounds and felled trees, which was quite thick and glutinous. Those two days were fine, with 61° and 66° of heat.

At this time, the strong roots would exude just sufficient to moisten dry earth dusted on a recent wound; and the extreme ends of the fibrous roots looked white, just as if they were beginning to grow.

On the 23d, heavy rain and cold set in, and continued to the 30th; during which time I could not find the least change in the young shoots, which stood at one, two, or three young leaf joints, and about as many inches long, nor did the roots advance, no sap exuded from roots or branches. The medium of heat in the last ten days was 50° 8-10, and of cold 42° 3-10, and 3 39-100 in. of rain had fallen.

The observations were continued to the 4th of May, on which day, all the standing trees, and stumps of the felled trees, clearly denoted an extension of young wood and roots, and a mucilaginous matter rested on the surface of all the stumps with minute globules of air in and under it. Whether the air was from the combined effects of rain, sap, and heat, or came from the root stumps I could not distinguish. In the last four days, 40-100 of an inch of rain had fallen in genial showers; and the medium of heat was 62°, and of cold 46°

This terminated these experiments; but others had been made with exactly the same results as to the primary motion of the sap, and progress of vegetation: but with regard to time, there was a material difference; viz. a vine in a pot, put into a pine stove, on the 13th of March, completed the process in eight days, and a small birch tree in a pot, put in

the same situation on the 5th of April, got through the same process in rather less than five days.

Yours, &c.

Welbeck, Feb. 1, 1826. JOSEPH THOMPSON.

ART. 108.—*An essay on Physiological Botany, in Continuation of the Experiments described in the preceding Paper.* By Mr. JOSEPH THOMPSON.

SIR,—After four years more of extensive practice, and close attention to the ordinances of nature in this branch of my profession, I am satisfied that the present theoretical system of vegetable phenomena was founded in error by Malpighi and Grew. Had they commenced their experiments earlier in the season, and wounded the extremities of the branches, they would have obtained pure limpid sap many days before they got it in the cylindrical wimble holes, in which they never could discover from what part of the cylinder it was produced, the accumulation would only appear in the lower segment of the cylinder, which naturally led to the supposition that it was propelled upwards.

The late Sir James Edward Smith, in his *Introduction to Physiological and Systematic Botany*, has brought into view most of the experiments made on on this subject, from the time of Malpighi down to those of Thomas Andrew Knight, Esq., whose experiments on the cuttings of fig trees are recorded in the *Transactions of the Philosophical Society* of 1801, 1803, and 1804.

The Rev. Mr. Keith has also collected all that has been written on this subject. The experiments conducted and related by those very scientific persons do not, however, appear to me satisfactorily to establish the conclusions that have been drawn from them, and I now proceed to add to my former observations on this subject a statement of facts which seem to impugn their solidity.

Sir. J. E. Smith, in his book above quoted, says, "much contrariety of opinion exists on the vascular system of plants, propulsion of sap, &c." The excellent plates of Anthony Tod Thomson, in his *Lecture on Botany*, show that the anatomy of plants and the vascular system are correctly understood; but the propulsion of sap, its change to cambium and deposit in wood, the time occupied, and temperature most congenial to those operations in the vegetable system, are clouded in darkness.

The following quotations will show that some writers have accidentally hit upon the true system, in so far as regards the primary motion of the sap.

In Miller's *Gardener's Dictionary*, second edition, printed in 1741, under the article Persicum (Peach,) he says: It sometimes happens that the roots are buried too deeply; for the sap which is contained in the branches being put strongly in motion by the warmth of the sun early in spring, its strength is lost before the sun can reach its roots to put them in equal motion, which causes the blossoms to drop off and the shoots to become stagnant."

The above quotation is susceptible of strong comments, but I proceed to notice Mr. G. Bliss's *Practical Treatise on the Cultivation of Fruit Trees* (1825) At page 60., on grafting, he denies any influence of the stock on the scion engrafted thereon, and says, "the fund of vegetable matter above ground must be filtered through the roots," &c. and that "the stock partakes of the nature of the scion; for there can not be an existing doubt but that the roots, veins, fibres, or whatever they may be called, strike from scion into the stock, and run downwards to the extremity where the sap flows." He then gives an instance of variegated jasmine being budded on a common green one, and several of the buds below the one inserted became variegated.

Mitchel in his *Drendologia*, published in 1827, denies the circulation of sap, and designates the branches, fronds, buds, and leaves, as caterers to the tree.

Van Helmont's experiments on the willow tree, which increased 119 pounds in five years, and only wasted three ounces of earth, show that the sap to sustain the tree, with its increase of 119 pounds, could not be derived from the earth, or else a greater waste must have taken place. Or must all that increase be attributed to the distilled water he gave it?

I now offer some instances of practical operations occurring yearly in the plashing of quickset hedges, which is done by the common laborer, who cuts out all such shoots as are not wanted for the layers; the latter he cuts nearly off, leaving no more than a bit of bark, and a small thin portion of wood on one side, the substance of which, in case of a strong layer, is not more than a common leather strap; the thinner it is, the better for the layer: Here we see the epidermis, cortical body, liber, wood, corona, and pith, all severed, and in some cases, part of the stump, or stock cut off, leaving 4 to 8 in. space between the body of the stool and layer. Yet we see the layers in a full healthy state of vegetation, with an exudation of sap from the lower end, many days before the gaseous atmospheric influence acts upon the stock or stump. In this case I do not see that it is probable, and scarcely possible, that the ramifications of the layer, to the extent of 10 or 15 ft., could be fed and supported by the small, strap-like, connecting splice at the bottom.

The most superficial observer must have seen moderate sized elm trees vegetate strongly the first, and weakly, the second year, after they are felled and laid by without either root, butt, or top branches.

In the spring of 1826, I noted a knotty arm or branch of Pseudacacia (Cobbett's Locust Tree,) about 12 ft. long and 10 in. diameter, accidentally thrown across other pieces of wood, under the shade of a yew tree, and in a damp situation, but supported at least one foot from the earth. Most of the berry knots vegetated more or less; one shoot attained a length of 15in.; in the following winter the upper end of this shoot perished, but, in the spring of 1827 the remainder vegetated, and produced the length of 9 in. more of young wood; and vegetation also took place on every knot, to within about 2ft. of each extremity of the piece or arm.

I was informed by an intelligent and sensible woodman, (the late Mr. Yates) that he saw a willow, or sallow pole pointed at both ends, and put into the middle mortises of two three-holed posts in the gap of a hedge, under the shade of some yellow trees, in a moist situation by the side of a rivulet, which vegetated two years.

All men who feel and peel oak timber will verify the fact, that the tree will peel earlier in the peeling season, and easier at top than bottom.

In the striking of hard-wooded heaths, and other choice botanical cuttings, as well as those of the gooseberry and all the tribe of Salices, we are sure that nothing can be derived from the earth at the outset of the operation, the power of vegetation must be contained in the cutting, and that sufficiently to create its own roots and perfect the rooted shrub or tree. It is found in practice that a vine cutting, planted ever so much, say a foot, below the surface, will only make roots at that bud nearest the surface; and a single bud, cut off a shoot with a small portion of bark and wood, not larger than a horse bean, will produce as good a plant as a cutting a yard long.

I offer one more practical proof of the descent of the sap, which demonstrates that every bud of a tree contains the same latent vitality as that contained in the seed sperm. But the means of preserving the vegetating powers of the cuttings, and buds is very limited. Oranges have been grafted in almost every month of the year, and pinks and carnations, and other herbs, may be propagated by cuttings in all the spring and summer months. The proof I offer is in the grafting of vines out of season. In the last two years I took cutting for grafts off the latest vine; those I preserved in a temperate cellar, until the fruit of the earliest forced vines was all gathered, the leaves fallen off, and the vine wood as dry and torpid as an oak tree in January. I then inserted the scions by vertical incisions, leaving the tops of the vines entire; the inserted grafts soon vegetated, and became lateral branches, and were the only parts of the vines which showed the least signs of life, for months after their insertion. If those grafts derived the vegetating power from the stock of the old vines, it is an unaccountable circumstance that no other part of the vines vegetated before the approach of the next forcing season.

This fact alone is quite sufficient to show that the present notions on this branch of the botannical system are incorrect and erroneous.

Yours &c,

Welbeck, April 1829. JOSEPH THOMPSON.

ART. 109.—*Description of three new Kinds of Seedling Camelias.* By MICHAEL FLOY. [Read before the New York Horticultural Society.]

DEAR SIR—Please to lay before the New York Horticultural Society for their inspection, drawings of three new kinds of the Camellea Japonica, which I raised from seed and which flowered with me for the first time this last spring. As the Inspecting Committee did not meet when they were in flower I did not exhibit them; but as several of the members of that Committee saw them in flower, they will recognise the drawings to be accurate. They are designated as No. 6, No. 7, No. 8, and named as follows:—

No. 6, Camillia *Splendens*, this is a very large kind. The flower measured across five and a half inches, it is also very double, shewing nine rows of petals, very regular round, and even; the color a fine rose, with an approach to white edging, and will no doubt be a rich rose flake; the leaves are very large, thick and glossy; larger than any other kind I have seen. It is a very splendid plant in leaf or flower. The seed was sown in 1821 and was from the same as No. 1 which flowered in 1826.

No. 7, Camelia *Fulgens* is a very rich dark colored Camellia, similar in color and quite as dark as the Tuscany rose, blackish at the bottom of the petals, the upper part having a bright fiery appearance: hence the name of *fulgens* seems to apply well. The flowers are very double and regular, not shewing any stamina or pistilla. The seed was sown in 1823.

No. 8, Camillia *Wardii*, so named in compliment to Mrs. Ward, the lady that made the drawings. It is a delicate pretty shaped flower, shows a little of the *warratah* centre or rather very like the *atrorubens*, the centre more even and not shewing the straps which are often seen in the *atrorubens*, every way more regular, color rather deeper at the base, and brighter at the top of the petals. The seed was sown in 1823.

I also exhibit with these three kinds, the five other sorts of my seedlings, and which have been described in a former paper; two of these kinds you will per-

ceive are single flowering kinds, one of them was retained on account of its pretty shape and disposition to flower very profusely, and as it will strike from cuttings it will at least make a good stock plant; it also seeds freely. The other was retained in consequence of its very large size and which I consider a fine breeder, it also seeds well. I have several fine plants that will flower this season, some of them I have no doubt will be worth keeping; all single kinds I shall reject as I have done this already; and use them for stocks. I have also several hundred seedlings coming on, add have no doubt of making a handsome collection for the *Camellia Americana*. This country I think very favorable for producing fine Chinese plants in general, and the Camellias in particular. I am Dear Sir,

very respectfully, your ob'nt ser'nt.

MICHAEL FLOY.

WM. R. COOKE, Esq.

ART. 110.—*Description of Brevoo'ls Purple Bolmar Plum.* [Read before the New York Horticultural Society.)

This plum was raised from a pit or seed of the Bolmar's Washington Plum by Mr. Henry Brevoort, of this place. The size and shape of the fruit are similar to the original; the color is a deep brownish purple, with a blue bloom on the fruit; shape nearly round with a deep furrow near the stem; the stone adheres to the flesh, or what is called a clingstone; the weight of the fruit nearly two oz. differing from the Washington plum whose color is a light yellow and a free stone. It has been remarked that the Washington plum is rather insipidly sweet until perfectly ripe. This, on the contrary, is a brisk high flavored plum, much like the Orleans, but a little sweeter. The leaves like the parent tree are large, not quite so glossy, but more rugose and nervy. The coltor of the young shoots is a deep brown purple, smooth, the eyes prominent and wanting the stipulæ to the leaves, giving it more the appearance of a gage plum.

There is no doubt but this is a seedling. M. Bolmar gave Mr. Brevoort three fruits of the Washington plum in 1820. This plum is the production of one of them, nor is there much doubt but it is a cross between the Washington and the Orleans plum by accident, as there were two trees of the Orleans plum, which grew very near the Washington plum, from which the fruit was taken. As it is a fine plum, and likely to be useful, I have sent a few grafts to be distributed among the members.

I remain Gentlemen, your ob'nt servant,

MICHAEL FLOY.

Horticultural Establishment, Broadway, near 12th st.

ART. 111.—*Vegetable and Animal Matter in Stables and Yards injurious to Horses and Cattle.*

[From Hayward's Science of Agriculture.]

Whilst recommending the careful and effectual draining of stables, for the preservation of the urine, as the most valuable part of animal manure, I also state a circumstance, which cannot be thought unworthy of notice to agriculturists, which occurred to me, to show how necessary this is also to the health of animals.

I took possession of some stables, with the horses that had been sometime kept in them, and to my misfortune, in a very short time I found that the horses kept in those stables had been subject to that dreadful disease, called the mad staggers, for several years. Some horses had died, and the horses then there, and which had been for some time kept in the stables, were in a wretched condition. Two fine fresh horses which were put into them, were within a few months seized with the mad staggers, and one of them literally killed himself by knocking his head against the manger and stall; the other was saved by copious bleeding, and removed into a fresh stable, but was so reduced as to be lessened in value one half. My neighbors advised the pulling down the stables, considering the disease infectious; but having, on going into the stables early in the morning been almost suffocated & blinded by obnoxious gas, I examined the floor and drains, when I found the former to consist of large burr stones, laid on a stiff clay; and the floor sunk so low below the drain, as not to admit of the draining away of the urine. This struck me to be a sufficient cause to affect the brain of any animal confined in it, the same as it had the horses. I therefore had the floor taken up, relaid, and properly drained; and the walls and ceiling, manger, cribs, &c. washed with quick lime; and from that time for ten years I have never had a diseased horse."

ART. 112.—*Extract of a letter from a Tourist to the Editor of the American Farmer, dated Albany, July, 1829.*

"On the evening of the third day after parting with you at Baltimore, I reached the ancient city of the Knickerbockers, without fatigue, and delighted with the incidents of my journey. The facilities and comforts of travelling in this section of the country form a striking contrast with the heavy roads and slow stages of the south. For the greater part of the distance, while moving at the rate of from *ten to thirteen miles the hour*, I possessed the same conveniences of reading and writing as my own study affords. But as our whole route was by day light (it might be added by *sun light*) the variety of scenery presented in

rapid succession by the shores of the Chesapeake, of the Delaware and Hudson, was too attractive to leave room for books or other amusements.

I was much pleased with a scene, which was witnessed on board of one of the steamboats, and which forcibly reminded me of the industry of the Swiss ladies, while traversing by the same mode of conveyance their own romantic lakes. One of the fair daughters of the East had seated herself upon the deck, fanned by the breezes of the Chesapeake, and found employment for her pretty hands in weaving a beautiful silken watch-guard, destined no doubt to chain the heart of some favored admirer. The ingenious process which was almost as delicate and intricate as the gossamer web of Ariadne, attracted the attention and excited the laudable ambition of an accomplished daughter of the Minister from the Netherlands. Not too proud to stoop from her station, and to acquire an art which might hereafter prove a source of amusement, she knelt upon the deck at the expense of her neat Florentine robe, and patiently received the lessons of her republican instructress. Her efforts were crowned with complete success.

Not far from the splendid grounds of Dr. Hosack, is the residence of Dr. Allen, the celebrity of whose classical institution has spread throughout the country and attracted students from different states. His stately mansion is situated in the midst of a lawn of eighty acres, intersected by avenues and winding walks bordered with ornamental trees. From the window of the library the eye ranges down the banks of the Hudson for a distance of twenty-five or thirty miles, and reposes upon the picturesque scenery on the opposite shore. Here are porches and halls of science, consecrated as the Pœcile, shades deep and classical as the groves of Academus, and waters brighter than Ilissus. The learned proprietor as he himself remarked to me, belongs emphatically to the *peripatetic* school of philosophy. His hours of relaxation from study are frequently employed in walking through the fields with his pupils, conversing familiarly on what they have read, and at the same time enjoying the beauties of nature. All his scholars are inmates of his roof, and treated as the members of one family.

The Doctor was once asked by a visitor, like myself from the south, who kept the best house in the village? He replied, that his own was probably about as good as that of any of his neighbours; and its hospitality was freely tendered. After learning this anecdote, I took lodgings for the night without ceremony, and passed a most agreeable evening in various discourse. The next morning we went to breakfast with one of the Doctor's neighbors and friends, the wealthy proprietor of three hundred acres, who contented with his success in trade, has had the wisdom to beat his anchors into plough shares, and to retire from the bustle of the city to a rural and romantic retreat at Hyde Park. He has embarked with enthusiasm in agricultural and horticultural pursuits, and his farm, his gardens, and his ornamental grounds are in excellent order, evincing skill and taste in his new profession. The whole atmosphere is charged with the fragrance of flowers and the perfume of "new mown hay." In rambling along winding pathways, by the side of gurgling brooks—amidst a polished circle of ladies and gentlemen, who regaled me with music and conversation, I here forgot for a time the dejected spirits and morbid feelings of an invalid. A little incident occurred, which reminded me of the fables of Orpheus and Amphion, the sound of whose lyres was so sweet, as to charm both animate and inanimate nature. While an accomplished amateur was giving some of the finest specimens of her execution upon the piano, and a young lady was breathing out the very soul of music, a thrush came and perched upon a tree near the window, filling up with its wild symphonies the pauses of the voice and instrument. But I must quit Hyde Park, though I could respond to the feelings of a learned prelate, who lingering amidst the charms of its scenery, exclaimed "*hic requiescam*—here would I live, here die, here wish my ashes to repose."

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A few days after my arrival, two gentlemen and myself rode three miles from town, to visit the late chief Justice of the state. We found him like Cincinnatus, buried in retirement, and engaged in agricultural pursuits. His farm of 200 acres, entirely secluded from the world, at present engrosses his whole attention; though his fellow citizens not unmindful of his superior talents and eminent services have called him, like the Roman patriot, from the plough, to mingle in the turmoils of public life, and participate in the councils of the nation. It was due to his age, intellect and weight of character, to have been appointed to the Senate, instead of elected to the House of Representative, where he must be brought in contact with young men, who have more reputation to gain and less to lose. But in any situation, I trust that he will maintain the dignity of his character, and prove himself useful to his country. He still enjoys a vigorous mind in a sound body. The state of New York, lost ten or fifteen of the best years of his life by driving him constitutionally but prematurely from the bench. Charmed with his hospitality and the easy flow of his conversation, we accepted his invitation to remain to tea, and did not return to town till a late hour.

On the 4th of July, three gentlemen and myself went to dine with Jesse Buel, Esq. whose celebrated farm is two miles from Albany. At what place could

the birth day of our national freedom be commemorated with more propriety, than at the bountiful table of the farmer, the fruits of whose industry contribute so largely to the real independence of our country? This remark is peculiarly applicable to Judge Buel, whose well directed efforts and successful experiments in farming and gardening reflect credit on himself, and have been highly useful to the community. We found him in the midst of a flowery region, which a scientific knowledge of his new profession had enriched, and his taste embellished. The largest and most splendid bouquet I have ever seen ornamented his fire-place, and a rich variety of natives and exotics were seen in the bloom about the mansion, shaded by some of the original pines of the forest. Unfortunately the state of the weather was such, as to prevent us from examining very extensively or accurately his grounds, which are perhaps better cultivated and rendered more productive than any in this part of the country. His corn and potatoes are much the finest I have seen this season. The extraordinary growth of the former is ascribed to a manure, consisting of the pith and parings of horns, obtained at comb factories. Judge Buel deserves great praise for his attention to the cultivation of fruits, both indigenous and exotic. The rarest varieties to be procured from different parts of the United States, and from Europe, are now undergoing experiments in his gardens. Few subjects in rural economy have escaped his investigating mind, and he possesses a happy facility of recording the result of his observations for the benefit of others, as the pages of the American Farmer can bear witness.

My enjoyment of Mr. Buel's society was not limited to the convivial pleasures of an anniversary dinner. On the 6th instant he harnessed his wagon, and we set out on a rural excursion to the county of Saratoga, not for the purpose of joining the fashionable circles at the springs, but to examine the extensive farm of Henry W. Delavan, Esq. His homestead comprises 500 acres, finely situated, with a rich soil and under the best cultivation. About one third of it is grass land, from which a heavy crop will be taken this season; and the pastures of red and white clover are luxuriant in the extreme. Numerous droves of cattle, 20 horses and two sheep revel in the midst of such fertility. An avenue *macadamized* in the true English style, leads through a rich and extensive lawn to the mansion, which is finely shaded with aged elms, locust and chesnut. Within twenty paces of the front door, a copious and clear stream winds through the grass, affording a supply of pure water, and adding much to the charms of the landscape. A small lake, studded with grassy islets, is visible from the window. On one side, the view is terminated by a forest of aboriginal and stately pines; on the other, by a broad and beautiful sheet of water, four miles in extent, with long ranges of the green mountains of Vermont in the distance. The mansion itself is neat spacious and commodious, possessing every requisite save one, to render the wealthy and hospitable proprietor happy. Participating in all the comforts of his residence, we next morning paid a visit to his neighbor Col. Young, who has wisely exchanged the din of politics and the turmoil of public life, for rural quiet and independence afforded by his 300 acres. We found him in his favorite retreat, his garden, with his hands besmeared with mud in transplanting cauliflowers. He feels the same enthusiasm in horticulture, as his friend Delavan does in farming; and both have given a powerful impulse to improvements in their respective pursuits.

You will perceive by the foregoing sketch of my rambles, protracted much beyond my expectations, that some of the most wealthy, intelligent and distinguished men in the state of New York are actively employed in the noblest of all pursuits, the cultivation of the soil. Agricultural societies, established several years since under the auspices of that enlightened and illustrious statesman, De Witt Clinton, gave an impetus to improvements in rural economy, the salutary influence of which it is still felt in the community. Happy would it be, in my opinion, for the interests of the state if some of the eminent individuals whom I have named and others engaged in the same pursuits, were called to public stations, where their efforts might be directed to the re-establishment of a system which has been prematurely abandoned."

ART. 113.—*Agricultural Schools.* [Extract from an address of D. K. Este, Esq. before the Agricultural Society of Hamilton county, Ohio, at the annual exhibition in June 1829.]

Although much has been done within the last half century towards improvement in agriculture, yet it is surprising especially in the United States, that so little has been effected towards establishing any system of education to make an accompliished agriculturist. I have made some examination and enquiry, and I cannot ascertain that an agricultural school or professorship, in any college exists in the United States. In answer to a letter, recently written by myself, for information on this subject, to Gen. Stephen Van Rensselaer of New-York, one of the most experienced enterprising and public spirited agriculturists in the Union, he says, "I regret extremely that I cannot afford you the information you desire; all my efforts have been unavailing to establish a pattern farm, or a professorship in agriculture. I know of no school in

this section of the United States. I hope your recommendation of an agricultural school will be noticed by your legislature, and Ohio have the honor of the first establishment in the Union." Allow me to avail myself of the present occasion to urge you individually and collectively, to exert your influence towards the encouragement and establishment of an agricultural school within the county of Hamilton. If by your exertion and influence one shall be established, the benefits resulting from it will be inculculable, and the example will soon be followed in every direction. This appears to be a fit time to commence. The state of public education is beginning, especially in Europe, to be more particularly directed to particular pursuits in life. The spirit infused into the public mind by individual efforts, and by agricultural societies, has prepared the way—and what place more suitable than the county of Hamilton? Washed by the beautiful Ohio on the south—the Big and Little Miami rivers running through the western and eastern sections, and the canal passing from north to south through the centre of the city of Cincinnati, until it intersects the Ohio; a most fertile soil, delightful climate, and free population; in a great, interior, agricultural state—if such a school cannot be established here, where can it?—And is it not important that a man should possess skill in the theory and practice of agriculture, before he undertakes the management of a farm? Will a general education qualify him for this pursuit? If a man is to rely upon the profession of law, physic, or divinity, after much general preparation, he must devote years of laborious attention to the peculiar studies of that profession, before he will pretend to be qualified. The intelligent merchant diligently studies the most approved writers on trade; acquires an extensive and minute knowledge of the ever fluctuating state of the markets; and arrives at a knowledge of his business through a long and attentive service in the counting-house; and the skilful mechanic must qualify himself by carefully studying these works connected with his peculiar calling, under the direction and instruction of an experienced and practical operator. To enable the agriculturist to apply the principles science to the cultivation of the ground, he must be taught, and should devote much time to those studies and their practical application, immediately connected with the whole range of rural economy—natural history, natural philosophy, chemistry, mathematics, botany, geology. Animals, vegetables, minerals, soils are to be studied and understood. The results of the experience of scientific and practical agriculturalists and husbandmen, which have been ascertained and recorded in different ages and countries, are to be treasured up in the memory, and compared with his own observation and experience. And is the young farmer to be left to acquire this various knowledge, without system, in any manner, without skilful instructors? Hitherto this has been the case. The most useful, one of the most difficult, and that which ought to be esteemed the most honorable pursuit in life, has been generally considered so easily understood, that schools, deemed necessary in almost every thing else, have been looked upon as of no consequence in this. In some parts of Europe, indeed, the importance of agricultural schools is beginning to be duly estimated. Altho' the institution of Mr. Fellenberg, near Hoffyl, is not strictly an agricultural school, agriculture with him being a secondary object subservient to the school of industry system of education; yet, "a grand principle of this institution is, that every thing must be kept subordinate to the main business of cultivating the ground; that whatever else can be learned by the boys is so much clear gain; but that, before every thing, they must learn to support themselves by the labor of their hands; and of this occupation a pleasure is made by the agreeable course of encouragement and instruction with which it is combined." The celebrated orator, statesman and philosopher, Mr. Brougham, visited this establishment about ten years since, and on his examination before the education committee in parliament, it appears that Mr. Fellenberg's farm in the canton of Berne, about four miles from the city; that he had commenced thirty years before and his plan had been in full operation about twenty years, now thirty-one. The farm contains two hundred and twenty acres; an academy where languages and sciences are taught; an agricultural institute, connected with a small experimental farm, and a manufactory of farming machinery and implements, gymnastic exercises, including the use of arms: carpentry and gardening are added, rather as means of filling up the hours of relaxation; care is taken to give by practice, a just knowledge of bearings and distances. "The distinguishing excellence of Mr. Fellenberg's operations, consists in the practical details which comprise an infinite variety of ingenious methods for economizing his resources and gaining his ends by sure means." In the year 1818, the agricultural school in the canton of Zurich, was in the most flourishing state, and those at Cane, near Geneva, and of Basle, gave every promise of success. The agricultural society and school near Moscow, to which the late emperor Alexander gave a grant of land, for a farm, has eighty pupils, and is increasing. One of the most celebrated schools on the continent, is in Prussia, about forty-five miles from Berlin. In 1804, the king of Prussia gave *Von Thaer* the estate of Moegelin, containing twelve hundred acres, to improve and manage as a pattern. He commenced by establishing three professorships

one for mathematics, chemistry and geology; one for veterinary knowledge; and one for botany, as well for the use of vegetable productions in materia medica, as for entomology. He employed an experienced agriculturist to point out to the pupils the mode of applying the sciences to the practical business of husbandry. The winter months are devoted chiefly to mathematics; the summer to measurement of land, timber, buildings and other objects, to chemistry, analizations of soils, to botany, there being a large botannical garden, and an herbarium with a large number of dried plants. The king of Bavaria has recently founded and endowed an institute for extending a theoretical and practical knowledge of agriculture. The institute is divided into three classes, in each of which the number of pupils is fixed, and the instruction public and gratuitous. In the first class a knowledge of agricultural labor of the most approved methods in use, of the management of the different agricultural implements, &c. is inculcated. To be admitted to this class the pupils must have such elementary knowledge as is usually acquired at common schools, and be at least sixteen years of age. In the second class theory and practice are united; the labors of the pupils are directed by experienced professors; and a knowledge of botany, zoology, and natural philosophy, so far as connected with agriculture, is taught. The third class is intended to form complete agriculturists. Within a short time the king of France has manifested a disposition to give the most liberal encouragement to improvements in agriculture, and has expended more than a million of francs in the organization &c. of an institution for those who wish to gain a knowledge of the principles of agriculture. In Great Britain I am not aware that any agricultural school, strictly speaking, exists. Agricultural and horticultural societies are numerous, as well as on the continent; and the board of agriculture, before mentioned, established by the parliament, from the recommendation and exertions of Sir John St. Clair, is a most extensive and valuable institution. In the college at Dublin, I am informed by Mr. Bullock of Ky., a member of the London Horticultural Society, that a professorship of agriculture has been established, and an experimental farm is connected with it, about two miles from the city. In some parts of England it is customary for young men to be placed under the instruction of intelligent farmers for a given compensation.

ART. 114.—*Making Cider—Description and Drawing of Thurston's Improved Cider Mill and Press.*—[By the editor.]

There is not a more wholesome beverage, nor one better adapted for general use, than the juice of the apple, fruit with which the kind hand of Providence has bountifully supplied our country. Like every other artificial preparation, the qualities of cider depend on the selection and management of the materials from which it is made. That there is a vast difference in the quality of the cider brought to market, is evident from the prices. In ordinary seasons of abundance it is sold from fifty cents to ten dollars per barrel. The farmer who sells it at fifty cents to two dollars per barrel makes himself poor; but he who obtains from three to ten dollars need never complain of a superabundance of apples.

Without the proper kinds of fruit it can not be expected that cider of the best quality can be made, yet we believe that a pleasant and wholesome drink can be obtained from almost any orchard in the country, provided it is properly made. Still much, unquestionably, depends on the kinds of fruit, and what kinds are mixed. In setting out an orchard too much care cannot be given to the choice of fruit. In vol. I, page 177 of the New York Farmer, is a list of cider apples. The fruit when gathered should be fully ripe, or be laid in a dry airy place for a few days to mellow and throw off moisture. Certain indications of ripeness are the fragrance of the smell, & spontaneous dropping from the trees. The whole produce of a tree never ripens at the same time, consequently there should be two or three gatherings. Those that ripen the first are generally the fairest and make the best cider. It is recommended that those with red or green rinds and pulp, without any mixture of yellow, should be separated from those of the latter color, which alone, or mixed with red, produce the prime cider.

There is a difference of opinion respecting the time the pomace should remain before it is put in the press. If it is pressed immediately after grinding, there will be a deficiency of richness and color in the cider; if kept too long the acetous fermentation will take place before the vinous is completed. From twelve to twenty-four hours are recommended; the warmer the weather, however, the shorter the time. The analogy existing between the making of cider and of wine, induces Crocker to suppose that the method of the vintager should be adopted by the ciderist. The former thrusts his hand into the pulp and takes some from the middle of the mass; if the luscious sweetness is gone off, on smelling it his nose is affected with a slight piquancy, and he then immediately takes it to the press and by slight pressing obtains his prime juice.

After the liquor is pressed out it should be strained through a hair sieve or coarse cloth, which is much better than straw so generally used for this purpose, and put into casks perfectly free from dirt and bad smell. Much depends on every thing, with which the juice comes in contact, being clean and sweet.

The next object which claims the particular attention of the ciderist is the fermentation. Placed in a cellar moderately cool, an evident ebullition takes place, causing bubbles to rise to the surface, and forming a crust soft and spongy over the liquor, or about the bung of the cask. As long as the violence of the fermentation continues, bubbles will rise and break through the crust. When the action has gradually subsided, all further sensible fermentation should be stopped by racking off the clear and pure part into open vessels to stand in a cool place for a day or two, and then put into casks for the winter, or by burning sulphur in the casks when about half full, bunging it up shaking it well with the fumes. If there is difficulty in stopping the fermentation, the cider must be again racked off, put into a cooler place, or a small quantity of brandy must be added.

It is in vain for farmers to expect to have a pleasant, wholesome and heart cheering beverage, without taking much pains in the management of the fermentation. The practice of taking the casks from the cider mill to the cellar, there to ferment and remain until wanted for use without racking off the liquor, is as slovenly as it is unprofitable; yet no inconsiderable portion of cider drank by farmers, and of that brought to market, is managed in this way. In the spring it either becomes vinegar or is so impregnated with the bad qualities derived from the dirt, lees, and settled scum that it is no longer drinkable except to vitiated tastes.

Having said thus much on making cider we subjoin a few recipes for its management. They are taken principally from the "Useful Guide."

To bottle Cider.—To fine and improve the flavor of one hogshead, take a gallon of good French brandy, with a half an ounce of cochineal, one pound of alum, and three pounds of sugar candy; bruise them all well in a mortar, and infuse them in the brandy for a day or two; then mix the whole with your cider, and stop it close for five or six months; after which if fine, bottle it off. The brandy will prevent the bottles from bursting.

To restore sour Cider.—If cider gets sour, mix a quart of honey with a quart of brandy or pure spirit, to which add a little salt of tartar, all mixed together, and put into the cask of cider.

To fine and purify Cider.—When the juice of apples has not been well purified, it soon corrupts; the dregs which remain mixed with the liquor, being small pieces of the apples, which give the cider an unpleasant rotten taste. In order to purify it, use isinglass finings; and to prevent the cider from growing sour, put a little mustard in it.

To cure Cider which is pricked.—To prevent cider from becoming pricked, or to cure when it is so, Put a little pearl ashes or other mild alkali into the cask. A lump of chalk broken in pieces, and thrown in, is also very good. Salt of tartar, when the cider is about to be used, is also recommended.

To refine Cider and give it a fine amber Color.—Take the whites of six eggs, with a handful of fine beach sand, washed clean stir them well together; then boil a quart of molasses down to a candy, and cool it by pouring in cider and put it together with the eggs and sand into a barrel of cider, and mix the whole well together. When thus managed it will keep for many years. Molasses alone will also refine cider, and give it a higher color, but to prevent the molasses from causing the cider to prick, let an equal quantity of brandy be put in with it. Skimmed milk, with some lime slacked in it, and mixed with it, or with the white of eggs with the shells broken in, is also good for clarifying cider, and all other liquors, when well mixed with them; a piece of fresh bloody beef, cut into small pieces, and put into the cask, will also refine the liquor, and serve for it to feed on.

In our next we will give a description and drawing of Thurston's Improved Cider Mill and Press, which we conceive to be the cheapest and most convenient article of the kind yet brought before the public.

To be Continued.

ART. 115.—*Letters from a Gentleman on a Tour through the Middle and Western States.* [To the Editor of the New-York Farmer.]

In fulfilling my promise of writing to you as opportunity offered during my intended jaunt to the West, I beg you to recollect that I do not hold myself responsible for any errors in the value of property or any statement which I may communicate as having received from others—as some delight in giving erroneous statements to travellers as we see in all letters describing manners, customs, or even when they took place before their eyes.—As an instance, a traveller passed through a town in Massachusetts, where in consequence of a street being about to be opened or some other cause, one or two buildings were removed on wheels—he expressed some surprise that they were not more injured. A gentleman in the stage informed him that the houses were all constructed so in that place; consequently the Book of Travels stated it as fact, to the no small amusement of the person who had been the cause of the error.

June 15th The steamboat started to take us on our way to Philadelphia, was the Citizen of Despatch Line which carried us rapidly to Amboy; whence we passed up the Raritan to view Brunswick. I am well aware of the strong power of imagination, still I do not anticipate seeing at the west anything superior to the scenery as you leave our good

city of Gotham, and pass along by Staten Island to Amboy. There is a variety of shapes to the farmers houses and cottages; some of which are to appearance just from the hand of the carpenter and painter, the appearance of others indicate that the property is in litigation or the owner is dead, or spends his time at the tippling shop or tavern.

The Raritan is very serpentine, and in many places the channel is quite narrow. On our arrival at New Brunswick, stages were in waiting which hurled us across the country at a rapid rate to Bordentown. I regretted not having time to examine the fine collection of plants and shrubbery in the garden of J. Bonaparte, which are pleasantly situated at this place—the country is not interesting from New Brunswick hence, to those of us particularly who like hill and dale—as it is very flat and sandy soil. We took steamboat at Bordentown, and the scenery down the Delaware to Philadelphia was very beautiful. Some very handsome cottages on the banks, and many fine farm houses and barns which are certain indications of good land. We arrived in Philadelphia at five P. M. having performed the journey with less fatigue than even twenty miles could have been performed fifty years ago. But I must defer writing more till I see this quiet city, and as you know in my jaunt business is the main object, I may not furnish this for several days.

June 18. We are now on the way to Baltimore. I find time to add a few words, describing what I saw in the quiet city of Philadelphia. First thing after business was despatched, our friends took us to see the pride and boast of their city. The Waterworks at Fair Mount, which are splendid indeed, Pratts' Garden, Landreth's, Hamilton Place Labyrinth Garden &c. were examined, and all with much pleasure. They are constructing a most splendid Penitentiary, modelled after the Feudal Castle. The cells are arranged within the walls, like the spokes of a wheel, and the overseer's house the hub; by which he has at the same time a view of an entire line without altering his position. We were pleased with a single echo in one of the vaulted passages, more distinct than I ever before heard. The Academy of Fine Arts has been so often and ably described that I shall only say half a day spent there seemed but an hour. We also visited the rooms of a gentleman who was exhibiting such windows as are used in churches and splendid buildings in Europe. They were of painted and stained glass, splendid beyond description. The wealth of our young country will hardly afford to purchase windows, each of which would cost more than many churches do. Peale's museum which is arranged with much taste was particularly interesting. The bones of the mammoth are not among the least of the curiosities. The cleanliness of the market, and in fact the general attention to clean streets in this city is pleasant to every one—the contrast to one from our good city of York is indeed very striking in that respect. Their marble steps which are kept very clean appear dangerous to us who are accustomed to railings, as they have none even when you ascend several steps.

But the last not least—I must speak of our country's benefactor, John Hare Powel, Esq. of this city a gentleman of fortune, who has a delightful residence at Powelton, a short distance across the Schuylkill; and whose herd of "Improved Short Horn Stock" surpasses far every kind in this country for numbers and value. That breed of cattle, have a very quiet disposition, are great milkers, and very easily made fat for slaughter.—As an instance of their docility, I observed Mr. Powell's Herdsman pass from the house across an extensive field of grass not yet mown, and let some twenty head (more or less) of the Durham Short Horn Cattle, and perhaps as many South Down sheep into the field, which at the moment astonished me, and but for a moment, as the sheep took the lead, single file, the cattle following and passed directly to the barn yard, in a narrow path without ranging in the least. This is one of the many evidences of the natural quiet and pleasant disposition, if I may so express it, of that kind of stock. I had the pleasure of seeing the famous cow Belina, which many of your readers will recollect produced milk in 1827 from Thursday the 24th to Saturday evening the 26th, (three days) from which eight pounds thirteen ounces were obtained by the usual process, being at the rate of twenty and a half pounds per week, (see American Farmer, Vol. 9, page 100.)

Those who feel an interest in this country when they have seen demonstration of the wonderful benefits she derives from the exertions, to say nothing of the pecuniary sacrifice often attending the introduction of improved animals, must acknowledge such men as their country's benefactors, and posterity will remember them when those who wasted their substance and breath for a short political triumph, will have been long buried in oblivion. By his politeness we saw the famous reclaimed meadows on the banks of the Schuylkill, where the cattle in one season that are driven from all parts of the western country are fatted, and will from the high celebrity of the beef command, the highest prices. I left Philadelphia with regret that time did not allow a longer visit. *To be Continued.*

Corn Soup.—Cut the corn from the cob, and boil it in water till sufficiently done; then pour in new milk, and season it with salt, pepper, &c.; add one or two eggs, and continue the boiling; thicken it with a little flour."

ART. 116.—*Report of the Silk Committee of the American Institute, respecting the propagation of the Mulberry Tree.*

The subscriber would beg leave to propose the adoption of certain measures by which the propagation of the mulberry tree from domestic plants may be depended upon, in a much shorter time, and with with less chance of failure, than in using foreign seeds.

In the vicinity of this city there are a good number of white mulberry trees of the best qualities, which by various processes of tillage, especially by that of pruning in the fall of the year, would be made to put forth in the ensuing spring, a quantity of cuttings, and scions, fit for nurseries and immediate cultivation. There is no difficulty in obtaining the concurrence of the proprietors of these trees, provided they are exempted from the charge and care of the necessary labor. The proprietor of more than fifty trees at Hoboken has already given his gratuitous permission. The product which may be thus obtained added to several others or many crops of cuttings on Long Island, Staten Island, &c. leaves us the prospect of several thousand mulberry trees which in less than twelve months from this time, would be in full way of growth and maturity. Their sale at very low prices would abundantly repay for the expense of tillage, and labor. The facility and practicability of effecting a prompt propagation of the mulberry tree, may be farther demonstrated by a reference to chapters V. & VII. of a treatise on the culture of silk, lately published under the patronage of the American Institute.

The subscriber is aware however that the exertion of the project requires the practical skill of professed horticulturists, in whose care and management, it should be left altogether not only in relation to the procuring of the cuttings, but likewise the distribution of them among our fellow citizens, with suitable directions to insure their growth. In accordance with the objects suggested in the foregoing report the following resolutions are therefore recommended.

FELIX PASCALIS,
Chairman of Silk Committee.

I. That the above report be accepted.

II. That Messrs. Pascalis and Wakeman be authorised to present themselves, as a Committee from the American Institute, to the New York Horticultural Society, and communicate to them the above plan, and proposed measures, for the propagation of the Mulberry tree from domestic plants.

III. That the aforesaid committee be also directed, in the name of the American Institute, respectfully to solicit from the Horticultural Society their concurrence, and co-operation, in the execution of the means for speedily procuring Mulberry plants, by their committee, or other persons, as they may think proper, and in conjunction with the Silk Committee of the Institute.

The foregoing report and resolutions were approved.

T. B. WAKEMAN,
Secretary of the American Institute.

August 13, 1829.

The Committee appointed on the part of the Horticultural Society, agreeably to the request of the Institute, is composed of Messrs. M. Floy, A. Smith, and A. Halsey.

ART. 117.—*Account of a rare and curious Book.*

[Communicated for the New-York Farmer.]

A small octavo volume, printed with black letter type, and bound in parchment, was brought to Samuel L. Mitchill a few days ago, for inspection. It was published in London in the year one thousand five hundred and twenty-five, and consequently must be three hundred and four years old.

It opens thus, "Here beginnyth a newe mater the whiche sheweth and treateth of the vertues and propertyes, which is called an "Herbal." At the close of one of the chapters, there is this sentence, "Imprynted by me Richarde Banches dwellynge in London in the Pultry, a lytel fro Hockes at the loge shoppe by Saint Myedredes church dore, the 28th day of May, the year of our lord &c." [as before] Both these pages are adorned with vignettes in the stile of those times. The paper and engravings are coarse and brownish; but the letters remarkably plain and distinct. The herbal contains one hundred and eighty notices of medicinal plants, in the order of the alphabet beginning with A and ending with W. A sample or two will give an idea of the way of thinking and writing at the time: "*Filipendula*; this herb is called Drepevorte. The wertue of it will destroy wycked wyndes about a mannes lyver, and his mylte. It is good for the stone. This herbe is hot and dry."—"*Rybworte*; is good for the fever quartayne. Take the joyce of this herb and drynke it, twohours before ye thynke the disease shall come to you, and by the grace of God it shall go fro you."—"*Scabious*; this is colde and moyst in the seconde degree. Scrape it well and seethe it in wyne and that drynke is good for the lyver, and it will destroy wycked humours in the stomake, and drynke it every day fastynge with Eurose, and thou shalt never have posthume bredynge within ye, as long as thou dost use this medycine."

The next discussion of this singular work is on the colors and qualities of urines, of which the author has given such a labored history as to deserve the character of a great judge in the examination of this excrementious discharge. He pretends even to

distinguish the urine of a man from that of a woman, and both from that of a beast.

He next discusses the different humors in the body, and gives directions for voiding and discharging them. He concludes with what he calls the "Boke of Medycynes," in which there are receipts and prescriptions for many disorders internal and external, medical and surgical. Among many other quaint and odd things are these; "Who that letteth them blode on the 18th daye of Marche on the ryght arm, and on the 11th daye of Apryl on the left arme, they shall never be blynde, for thys has been proved."—"There be three days in the yere in which no man should let hym blode. These be the last daye of Apryl the first Monday of August, and the last Monday of December. These three dayes be forbydden, &c."

The book is quite a rarity in a typrographical as well as in a medicinal point of view. Therefore this brief notice is taken of it.

ART. 118.—*Proceedings of the Inspecting Committee of the New-York Horticultural Society, for August.*

August 4, Mr. A Smith presented flowers, among which were Gardenia florida, Cassia marylandica, and Heliotropium peruvianum; also some Jargonelle pears.

Mr. Oakley, 12 ripe green Gages, weighing one pound.

Mr. Wm. R. Cooke, Cacalia coccinea, Vesbena triphilla, China pinks and other flowers.

Mr. A. Parmentier, Grape Plum (Prunier raisin)—a branch containing 20 of the fruit from a tree of two and a half feet bearing 96; also the Chinese Silk Mulberry, Fraxinus pavifolia, European mountain Ash, and several other plants.

Mr. Prince, Passiflora palmata, Bignonia grandiflora, Plumbago capensis, purple tea scented Rose, white with pink eye do. and a variety of other flowers.

Mr. Wilson, Hydrangia vulgaris, Phlox suaveolus and Muldavian Balm.

August 11 Mr. Oakley, some seedling cling Peaches raised by himself, the tree being 4 years; also some early sweet water, French Peaches, early American do., and Washington Balsam plum.

Mr. Groshon, a squash from the garden of J. P. Groshon.

Mr. Parmentier, a large Orange of his own raising.

Mr. W. Phelan, flowers, among which were seedling Carnations, Double Flowering Myrtle, yellow Oleander, and new scarlet Geranium.

Mr. Wm. R. Cooke, flowers, scarlet Lychnis, Cacalia coccinea, white Oleander, and others.

August 18. Mr. Oakley presented from the garden of Mr. J. P. Broome, a very fine seedling plum, called Brevoort's purple Balmar, from the seed of four years old; also from his own garden, some Flushing Gages, round do. freestone, Early rare ripe cling Peaches, and Lemon cling do.

Mr. Warner, early ripe Malagation, and round free stone Gages.

Mr. Coady, from Com. Chauncey's garden a nutmeg muskmellon, very fine ripe Lima Beans from the seed procured by Com. Hull from Lima; 116 of the beans filled a pint measure.

Mr. Herman Thorn, a ripe pine apple raised by himself.

Mr. Combault, Cherry-like Tomatoes from seed from the Island of Cuba, supposed to be a variety of the common Tomato.

Mr. Kinnersley, a fine sample of long cucumbers, measuring 12 inches.

Dr. Ireland, Cajannus flavus (D. C.) or Pigeon Pea in flower from seed from the island of St. Croix.

Mr. Prince, a fine collection of flowers, of which there were Camara lantanoides, Cornus mascula and Amaryllus purpurea.

Mr. Neale, a collection of flowers, among them were Amaranths, Phlox and Salvia splendens.

Mr. W. R. Coole an assortment from his garden.

August 25. Fine melons by Mr. Wilson and Mr. Coadly—Celery by Mr. Curr—Flowers by Mr. Neale—very large leaf of the Arum esquelentum, by Mr. Floy.

NEW YORK, AUG. 31. 1829.

Cotton Sail Duck.—Warren R. Davis, Esq. has recently addressed a letter to Mr. Branch, secretary of the Navy, detailing some experiments made on the substitution of cotton for linen for the sails of vessels. Sails and ringing of cotton fabric have long been used in the Archipelago. The Austrian and Greeks use it, although hemp is an important article in the list of exports from the former country. The superior celerity of the Grecian vessels, and also of the Baltimore clippers, is attributed in part to cotton canvass. It is said to hold wind better and to make a difference of one mile in six.

Isaac McKim, Esq. in a letter to Mr. Davis, gives very decided testimony in favor of the superiority of cotton duck. His experiments made during and since the last war are very satisfactory. It costs less than the best Holland duck, will last longer, and never mildews. The only objection apprehended is, that sails of cotton will more easily catch fire.

The Secretary of the Navy, in answer to Mr. Davis, observes that he has "ordered a full suit of sails for the sloop of war Peacock, now fitting for sea, to be made of cotton canvass." Should this experi-

ment prove as satifactory as those made in the merchant service, the value of this staple article of the southern states will become enhanced. The subject is of importance to farmers, particularly to those who are turning their attention to the cultivation of hemp.

Simple method to destroy the Hessian Fly.—A writer in the Canadian Courant says that this fly deposits its eggs on the kernels of wheat before it is harvested. They are so small as to be invisible to the naked eye, but can be distinctly seen with the microscope. They are attached so firmly to the wheat, by a glutinous substance, as seldom to be removed by threshing and other ordinary operations. The warmth of spring changes the eggs into maggots which attach themselves to the roots, where they remain until they acquire strength to begin their depredations. The writer says the following is a very successful remedy. —"Soak the seed wheat in water for twelve hours; spread it out on the barn floor, so as to allow the superabundant water to escape: then take fresh slacked lime and mix it among the wheat in quantity sufficient to have every grain covered with the lime, taking care to stir the wheat well with a shovel, so that no particle may escape coming in full contact with the lime, which, when thus applied, will in a short time destroy the eggs, and consequently preserve the grain from destruction."

The egg before the application of the lime is clear and transparent, but afterwards becomes opaque like an addled egg.

To preserve Peach Trees and render them productive.—A correspondent of the N. E. Farmer recommends the removal of the earth in the fall from the roots of the Peach, and the careful cleansing of them from all vermin—then put around each tree from ten to fourteen pounds of tobacco stems, pounding them down, mixing the earth until the space is filled. The pounding should be firmly done, and so carefully as not to injure the roots. This practice will keep away the worms and promote the health of the tree.

A principal cause, in the opinion of the writer, of the unproductiveness and premature decay in the peach tree in our country, is the exuberance of the growth. To remedy this he recommends to keep down the shooting branches; in order to give strength and constitution to the stock and bearing branches, prevent the tree from growing high by carefully cutting off the extremity of every branch. A friend of the writer, who had adopted this plan, now has peach trees twenty seven years old in a healthy and vigorous state with every appearance of adding many years to their existence. The trunk should be kept free from rough bark and cleansed with proper wash.

Preservation of Grain.—M. Ternaux of France, has been engaged for some years past in making experiments to ascertain the best method of preserving grain for a long period of time. He has constructed subterranean granaries, in which he has preserved corn for ten years in a perfectly sound state.

Experimental Apple Tree.—There is an apple tree at Gaelnitz, in Germany, which has been engrafted with 330 varieties of apples since 1804. It is sixty years old and has produced considerable quantities of fruit, and is said to exhibit a very beautiful appearance when covered with fruit of such varied kinds and appearance. It is frequently visited by the curious, and was respected by the troops which encamped around it in 1813, by whom it was regarded with almost superstitious veneration.

Massachusetts Horticultural Society.—Among the articles exhibited at the Hall of the Massachusetts Horticultural Society, on Saturday the 8th inst. were the following:—

From J. H. Cobb, Esq. of Dedham, specimens of raw silk—silk cocoons—1 lb. of reeled or organzine silk, and 1-2lb. of silk tow from the outside of the cocoons. The reeled silk sells readily to the manufacturers at $5 per pound—when prepared for the loom, $1,50 per ounce. This American silk is prefered by the manufacturers to that imported from China, and will bring a higher price. It was reeled on an apparatus, which is considered better than the celebrated Languedoc improved reel, and is capable of reeling the silk to any degree of fineness. Mr. Cobb, we understand has made about twenty pounds of organzine silk this season, for which he has already been offered *one hundred dollars* by the manufacturers. It is but three years since he turned his attention to the business of raising the White Mulberry and Silk, and he finds but few obstacles. He states that in three months from the time of taking the mulberry leaf in June, he can furnish silk fringe, and other articles of silk, which sell readily for cash.

From the Garden of Hon. John Welles, specimens of a very fine Apricot, imported by him from France. Mr. W. likewise brought buds of the same for distribution among members of the Society.—Members not present will be furnished with the buds by Mr. Welles, at his place in Dorchester.—*N. E. Farmer.*

Ripening Currants.—Sir—May I be permitted to say one word as to the *common currant?* It is so common fruit that every man will smile, when any one proposes to say any thing *new* about it. Yet I say fearlessly, that the common currant is less known than any other fruit; and that it is always eaten unripe—that the whole crop is gone before *one berry* is ripe. I have now fifty plants full of ripe currants, and they are a delicious fruit. I am not alone in my opinion. In England, they cover their currant bushes with bunting, and preserve them till October. I have

excellent currants in September, and they come when no other berries exist—and they come too, at the period of autumnal diseases, and your physicians will tell you that their ripened acid is perhaps the best preservative, as well as one of the best remedies in the decline of a disease, and in the approaches to a sounder state of health. J. Lowell.

I am induced to give my own name, in these little hints, because we are all pleased to know the authority for any opinion, and perhaps the experience of thirty years may be deemed of some little value. These hints may induce others to set aside one portion of their bushes untouched until every currant shall have disappeared from the market. How much superior would the wine be from September, or the last of August fruit.—*Ibid.*

Roxbury, August 25, 1829.

To check the too luxuriant growth of Fruit Trees.—If trees are found to grow too luxuriantly for the space allowed them, it will be to little purpose we attempt keeping them within compass, by cutting back and shortening the branches, as this in most cases will increase the evil; but if in the month of November, the earth be removed, and a proper proportion of the deepest growing roots cut off, the luxuriance of a tree may be checked in any degree and rendered more fruitful; this operation may be repeated as often as required, without the least danger of disease or injury."

Rules for making good Butter.—If you have four or five cows, it is best to churn every day; and by no means less frequently than every other day to obtain good butter. If you cannot churn every day, throw into the cream, when gathered, a handful of nice salt. In very warm weather, when milk sours soon, put two heaping table spoonfulls of salt into every pail of milk, before straining. The quantity as well as the quality of butter is greatly improved by this method. If you have ice, put a small piece in every pan of milk, and also into the cream when you churn. If you have no ice, put the cream into a pail, and hang it in the well twelve hours before churning. In the warm season, cream should be skimed as soon as it is in the least sour, and the coldest weather milk should not stand more than thirty-six or forty-eight hours. The utmost care should be taken to keep every article used in making butter. perfectly sweet, by frequent and thorough scalding.—*Journal of Humanity.*

Grafting Potatoe plants on the stalks of Tomatoes.—At one of the late meetings of the Paris Horticultural Society, a M. Fourquet presented some potatoe plants which had been grafted on the stalks of the tomato (*solanum lycopersicum, L*) The vegetation of these plants was very vigorous, and the potatoes are described to have been of excellent quality.

New Vegetable.—A new vegetable has been raised in the garden of Gideon B. Smith, of this city, which bids fair to become an important addition to our culinary plants. The seed was received at Boston from London, where it has been lately introduced from France. It is a species of white beet, and what is called in France "*Swiss chard,*" pronounced *card.*

It is very common in Switzerland and the north of France, and considered the very best of all spinacous plants. It is cultivated for its foot stalks and leaves exclusively, its root being fibrous. The stalk of the leaf is very large, some of those in Mr. Smith's garden exceeding two inches and a half in width, very white, and so tender that when first gathered it will scarcely support the leaf. The leaf is pretty large, of a pale green, and also very tender. It is one of the most beautiful and luxuriant vegetables while growing that can be imagined. One plant will furnish enough for a small family dinner. The stalks are separated from the leaf and prepared and served up in the manner of asparagus—the leaves like spinach. In Europe they have a great variety of ways of preparing it for the table. Several gentlemen have tried it in Baltimore, and pronounced it excellent. Mr. Smith will devote the whole of his present little crop to the production of seed for distribution.—*A. Farmer.*

Produce of the Bud effected by the qualities of the Stock. The Caledonian Horticultural Society were put in possession, by Captain Smith of Dysart, of an interesting account of the effect of introducing buds of the Ganges apple into branches of the Russian apple, by the ordinary process of inoculation; the Ganges apple from these buds having acquired the peculiar transparency which characterises the fruit of the stock; an effect it will be observed, which goes to overturn the received opinion that the prodnce of the bud is in no respect affected by the qualities of the stock.

Retarding Gooseberries.—A gentleman who has a garden in a high and rather late part of the district, sowed a crop of a tall kind of pea immediately bordering on some gooseberry bushes. From deficiency in the length of the stakes, the peas, after they had attained a certain height, fell over and completely covered one gooseberry bush, which was thus buried and lost sight of at the time the fruit of the others was ripe. The haulm of the peas was not removed till the beginning of December, when the gooseberries were discovered hanging on the bush in the greatest perfection. Perhaps this is too inartificial a method to be recommended to be followed, but it may afford a hint for improvement in the mode of prolonging the season of this excellent and popular fruit.—*John Ferme, Haddington, Sept.* 23, 1828.

To dress the roots of Celeraic Celerie Rare.—The

following is considered a cheap and an elegant mode. Pare the roots, and cut them into slices somewhat less than a quarter of an inch in thickness; then boil them gently till they are tender in some broth, or in water well seasoned, and a slice of butter added. When dished pour over them some melted butter, or *bechamel* sauce, which is made by thickening some broth and adding a little cream. Celeraic is cultivated at greater ease and at less expense than the common celery, and it may be used in the kitchen for seven or eight months in succession.—*J. Elles. Longleat Gardens, April* 25, 1829.

The Process of boring for Water has been practised with great effect in Paris. Two sheets of water has been ascertained to flow beneath the Paris basin; one between the chalk and the green sand, the other at a greater depth. From the last of these the water is discharged at St. Ouen to the height of 10 or 12 feet. and the quantity is 8656 gallons daily. The singular fact that wells are affected by the tide is confirmed by observation on those above mentioned.—*London Weekly Rev., April* 24, 1829.

Triticum hybernum, Winter Wheat, supposed to have come originally from the hilly parts of Asia; under the equator it seldom forms an ear below the elevation of 4,500 feet, or ripens above that of 10,800, and will not vegetate beyond 62° north lat.—Medicinally, bread is employed to form emollient poultices.

Secale cereale, Cereal, or Cultivated Rye. Apparently wild in North America. In France a disease, called the chronic or dry gangrene, has been produced by eating unsound rye, there called ergot. This disease has seldom been observed in England, but is endemical in some districts in France, in which rye forms the principal food of the inhabitants. It is also known in Switzerland, where it was observed that most animals refused to eat diseased rye, or rye affected with the cockspur, as it is called. The Royal Society of Medicine, at Paris, employed M. Tessier, a distinguished agricultural writer and man of science to go into the countries where the dry gangrene prevailed, and collect a sufficient quantity of the ergot or cockspur rye for experiments. The result confirmed the opinion of those who attributed the disease to the cause assigned. "France afforded also a simple explanation of the fact, that persons might live for a considerable time upon rye affected with the cockspur, without suffering any sensible injury from its use; since, in all the animals upon which it was tried experimentally, a given quantity was required to produce the specific effect; and they suggested the only measure, that of separating the diseased from the sound rye, which could prevent so great a national calamity as that which has been so often produced by its use. The spurred rye occasionally occurs in this country, but there are no instances recorded of its producing any such effects as those enumerated above; but, in the Philosophical Transactions, Dr. Woolaston has narrated several cases in which dry gangrene was produced in one family, by partaking of damaged wheat, and nearly the same effects were produced in a family in Wiltshire, by the Lolium temulentum entering largely into the composition of bread. In an essay on the genus Sclerotium, by De Candollo, in the Memoires du Museum d' Histoire Naturelle, the ergot is stated to be a parasitic production belonging to this genus; but however ingenious his investigations may be, their result is by no means satisfactory; and it is now generally concluded to be a diseased modification of the grain of the rye itself. Medicinally, it is used in uterine diseases.—*Gard. Magazine.*

Avearge price of Vegetables sold in Washington Market for July, 1829, [Corrected by William Curr, Gardener, for the New-York Farmer.]

Brocoli, from 25 to 50 cents per doz heads.—*Green peas,* from 25 to 75 cents per bushel.—*Potatoes,* from 18 to 37 1-2 cents per bushel.—*Sweet* do. from $1 to $1 50 cents per bushel.—*Cabbage,* from 18 to 75 cents per dozen heads.—*Lettuce,* from 9 to 18 cents per dozen head.—*Black Radishes,* from 8 to 12 bunches for 12 1-2 cents.—*Scarlet Radishes,* from 8 to 12 bunches for 12 1-2 cents.—*Celery,* from 6 to 12 1-2 cents per bunch of 3 heads.—*Carrots,* from 2 to 3 cents per bunch.—*Beets,* from 2 to 4 cents per bunch.—*Parsnips,* from 3 to 6 cents per bunch.—*Onions* from 14 to 20 bunches for 12 1-2 cents.—*Onions,* ripe from 50 cents to $1 per bushel.—*Water cress,* from 6 to 18 cents per 1-2 peck.—*String-beans,* from 12 1-2 to 37 1-2 cents per bushel.—*Windsor* or *Broad-bean,* from 50 to 75 cents per bushel.—*Turnips,* 2 to 6 cents per bunch.—*Salsify,* from 3 to 4 cents per bunch.—*Parsley,* 3 cts. per bunch.—*Cucumbers,* from 9 to 25 cents per 100.—*Squashes,* 25 to 75 cents per doz.—*Endive,* 12 1-2 to 18 cents per doz. heads—*Leeks,* from 3 to 8 cents per bunch.—*Green Corn,* 20 to 40 ears for 12 1-2 cents.—*Musk Melons,* 2 to 6 cts. each.—*Water do.* 4 to 18 cents each.—*Native Grapes,* 3 to 8 cents per half peck.—*Plums,* 25 to 75 cents per half peck.—*Apples,* from 12 1-2 to 50 cents per bushel—*Pears,* 18 to 50 cts. per bushel.—*Peaches,* from $1 to $1 per bushel.—*Gooseberries,* from 4 to 8 cents per quart.—*Raspberries,* 3 to 5 cents per basket.—*Whortle berries,* from 4 to 9 cents per quart.—*Tomatoes,* 25 to 37 1-2 cents per bushel.—*Peppers,* from 12 1-2 to 25 cents per 100.—Fruit of the purple *Eggplant,* from 3 to 4 cents each.—Pot and Medical herbs, in great abundance from 10 to 14 bunches for 12 1-2 cts.